

DOCKET NO.: MSFT-0987 /191794.1**PATENT**COPY OF PAPERS
ORIGINALLY FILED**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE****In re patent application of:****David C. Tannenbaum****RECEIVED**

FEB 26 2002

Serial No.: 09/348,885**Group Art Unit: 2671 Technology Center 2600****Filed: July 1, 1999****Examiner: S. Wiley****For: DUAL MODE DEVICE AND METHOD FOR GENERATING VECTOR CROSS PRODUCTS OR DOT PRODUCTS****BOX DSD****Commissioner of Patents & Trademarks
Washington, DC 20231****Sir:****POWER OF ATTORNEY WITH REVOCATION
AND STATEMENT UNDER 37 CFR 3.73(b)**

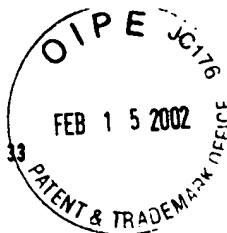
Revoking any and all powers of attorney heretofore given in the matter of the above-entitled application, the undersigned, assignees of the entire interest in the above-identified application, hereby appoints STEVEN J. ROCCI, Registration No. 30,489, of the firm of WOODCOCK WASHBURN KURTZ MACKIEWICZ & NORRIS LLP, One Liberty Place - 46th Floor, Philadelphia, Pennsylvania, 19103, as attorney(s) for applicant, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent and

Dec-27-01 14:32

From-WOODCOCK WASHBURN 33

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T-352 P 87/97 F-932



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Trademark Office connected therewith. The authority granted herein shall remain in effect unless otherwise revoked in writing by the undersigned or otherwise terminated.

In addition, the assignee also appoints the following attorneys listed below of **MICROSOFT CORPORATION**, One Microsoft Way, Redmond, Washington 98052 with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent and Trademark Office connected therewith.

Katie E. Sako

Registration No. 32,628

Daniel D. Crouse

Registration No. 32,822

Send all future correspondence and address all telephone calls to:

STEVEN J. ROCCI
WOODCOCK WASHBURN KURTZ
MACKIEWICZ & NORRIS LLP
One Liberty Place - 46th Floor
Philadelphia, PA 19103
(215) 568-3100

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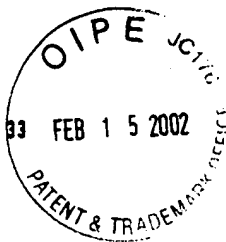
STATEMENT UNDER 37 C.F.R. §3.73(b)

MICROSOFT CORPORATION, a corporation of the State of Washington, certifies that it is the assignee of the entire right, title, and interest in the patent application/patent identified above by virtue of:

☐ An assignment from the inventor(s) of the patent application/patent identified above.

☐ 1. The assignment was recorded in the Patent and Trademark Office at Reel

_____, Frame _____



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☐ 2. The assignment has not yet been recorded. A copy of the assignment is attached.

☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as shown below:

- i. From: David C. Tannenbaum To: Silicon Graphics Inc. The document was recorded in the U.S. Patent and Trademark Office at Reel 010088 Frame 0352. A copy thereof is attached.
- ii. From: Silicon Graphics, Incorporated To: Microsoft Corporation. A copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet.

☒ Copies of assignments or other documents in the chain of title are attached.

The undersigned has reviewed all the documents in the chain of title of the patent application identified above and, to the best of undersigned's knowledge and belief, title is in the assignees identified above. The undersigned (whose title is supplied below) is empowered to act on behalf of the assignee, MICROSOFT CORPORATION.

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I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements are made with the knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

A handwritten signature in black ink, appearing to read "Daniel D. Crouse", written over a horizontal line.

Name: DANIEL D. CROUSE

Title: Assistant Secretary

Corporation: MICROSOFT CORPORATION

Date: 12/27/01

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UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
ASSISTANT SECRETARY AND COMMISSIONER
OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SEPTEMBER 14, 1999

PTAS

MARTINE PENILLA & KIM, LLP
RAYMIS H. KIM
830 WEST EVELYN AVENUE
SUNNYVALE, CA 94086



101092133A

UNITED STATES PATENT AND TRADEMARK OFFICE
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, ASSIGNMENT DIVISION, BOX ASSIGNMENTS, CG-4, 1213 JEFFERSON DAVIS HWY, SUITE 320, WASHINGTON, D.C. 20231.

RECORDATION DATE: 07/01/1999

REEL/FRAME: 010088/0352
NUMBER OF PAGES: 2

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:
TANNENBAUM, DAVID C.

DOC DATE: 06/30/1999

ASSIGNEE:
SILICON GRAPHICS, INC.
2011 N. SHORELINE BOULEVARD
MOUNTAIN VIEW, CALIFORNIA
94043-
1389

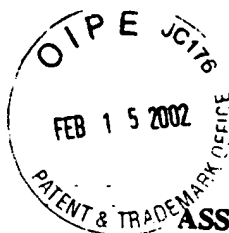
SERIAL NUMBER: 09348885
PATENT NUMBER:

FILING DATE: 07/01/1999
ISSUE DATE:

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07-16-199



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ET

To: Honorable Commissioner of Patents and Trademarks:

Please record the attached original document or copy thereof.

1. Name of conveying party:

a) David C. Tannenbaum

2. Name and address of receiving party:

a) Name: Silicon Graphics, Inc.

b) Address: 2011 N. Shoreline Boulevard, Mountain View, CA 94043-1389

3. Nature of conveyance

| | | | |
|-------------------------------------|--------------------|--------------------------|-------------------|
| <input checked="" type="checkbox"/> | Assignment | <input type="checkbox"/> | Merger |
| <input type="checkbox"/> | Security Agreement | <input type="checkbox"/> | Change of Name |
| <input type="checkbox"/> | Other _____ | <input type="checkbox"/> | License Agreement |

Execution Date: June 30, 1999

4. Application Number or Patent Number: Not yet assigned

09348885

The title of the new application is: DUAL MODE DEVICE AND METHOD FOR GENERATING VECTOR CROSS PRODUCTS OR DOT PRODUCTS

5. Please send all correspondence concerning this document to:

Raymis H. Kim
MARTINE PENILLA & KIM, LLP
830 West Evelyn Avenue
Sunnyvale, CA 94086
Tel. No. (408) 749-6900
Fax No.: (408) 749-6901

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6. Total number of applications and patents involved: 1

7. Total fee (37 CFR 3.41): \$40.00

☒ Enclosed
☒ Authorized to be charged to Deposit Account No. 50-0805
(Order No. 15-4-849.00)

8. To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

Date: July 1, 1999

Raymis H. Kim
Raymis H. Kim, Esq.
Registration No. 39,462

40.00 DP

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09/348885
07/01/99

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ASSIGNMENT OF PATENT APPLICATION

(Accompanying Application)

Whereas I the undersigned inventor have invented certain new and useful improvements as set forth in the patent application entitled:

DUAL MODE DEVICE AND METHOD FOR GENERATING VECTOR CROSS PRODUCTS OR DOT PRODUCTS

(Atty. Docket No: 15-4-849.00) for which I have executed an application for a United States Letters Patent.

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, I the undersigned inventor hereby:

- 1) Sell, assign and transfer to Silicon Graphics, Inc., a Delaware corporation having a place of business at 2011 N. Shoreline Boulevard, Mountain View, CA 94043-1389, (hereinafter referred to as "ASSIGNEE"), the entire right title and interest in any and all improvements and inventions disclosed in, application based upon, and Patent (including foreign patents) granted upon the information which is disclosed in the above referenced application.
- 2) Authorize and request the Commissioner of Patents to issue any and all Letters Patents resulting from said application or any division, continuation, substitute or reissue thereof to the ASSIGNEE.
- 3) Agree to execute all papers and documents and, entirely at the ASSIGNEE's expense, perform any acts which are reasonably necessary in connection with the prosecution of said application, as well as any derivative and applications thereof, foreign applications based thereon, and/or the enforcement of patents resulting from such applications.
- 4) Agree that the terms, covenants and conditions of this assignment shall inure to the benefit of the Assignee, its successors, assigns and other legal representative, and shall be binding upon the inventor, as well as the inventor's heirs, legal representatives and assigns.
- 5) Warrant and represent that I have not entered, and will not enter into any assignment, contract, or understanding that conflicts with this assignment.

Signed on the date indicated beside my signature.

1) Signature: David C. Tannenbaum
Typed Name: David C. Tannenbaum

Date: 6/30/99

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ASSIGNMENT

WHEREAS, SILICON GRAPHICS, INC., a Delaware Corporation, (hereinafter referred to as "Assignor") owns all right, title and interest in and to the inventions, patents and patent applications (hereinafter referred to as the "Intellectual Property") identified in Schedule A attached hereto; and

WHEREAS, MICROSOFT CORPORATION, a Washington Corporation, (hereinafter referred to as "Assignee"), is desirous of acquiring the entire domestic and foreign right, title, and interest in and under the Intellectual Property.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor assigns and transfers to the Assignee and the Assignee's legal representatives, successors and assigns, pursuant to the terms of a concurrently executed Confidential Patent Assignment Agreement, its full and exclusive rights in and to the Intellectual Property in the U.S. and every foreign country and its entire right, title, and interest in and to the Intellectual Property and related applications (e.g., provisional applications, non-provisional applications, continuations, continuations-in-part, divisionals, reissues, reexaminations, National phase applications, including petty patent applications, and utility model applications) that may be filed in the United States and every foreign country on the Intellectual Property, and extensions or derivations thereof, both foreign and domestic, that may issue thereon, and we do hereby authorize and request the Commissioner of Patents to issue U.S. patents to the above-mentioned Assignee agreeably with the terms of this assignment document.

ASSIGNOR HEREBY AUTHORIZES the Assignee to insert in Schedule A to this assignment document the filing date and application number of any application if the date and number are unavailable at the time this document is executed.

UPON SAID CONSIDERATION, Assignor conveys to the Assignee the right to make application in its own behalf for protection of the Intellectual Property in the U.S. and countries foreign to the U.S. and to claim under the Patent Cooperation Treaty, the International Convention and/or other international arrangement for any such application the date of any earlier U.S. application (or any other application on the invention) to gain priority with respect to other applications.

IN WITNESS WHEREOF, Assignor has caused one of its officers to hereunder set his hand on the date shown below.

Date 9/28/01

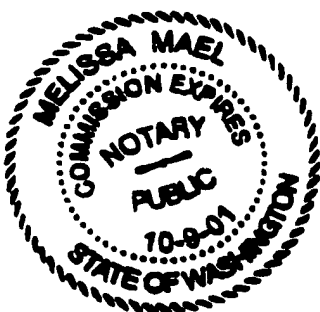
Sandra Escher
Senior Vice President
Title

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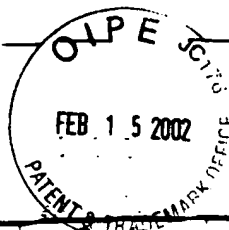
STATE OF Washington)
COUNTY OF King) SS:

On this 28th day of September, 2001, before me, a Notary Public in and for said county, appeared _____, who is personally known to me to be the same person whose name is subscribed to the foregoing assignment document, and acknowledged that he/she signed and delivered the document as his/her free and voluntary act for the uses and purposes therein set forth.

(SEAL)



Melissa Mael
Notary Public
My Commission Expires: 10-9-01



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Schedule A - U.S. Patents

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| | Country | Patent No. | Title | Issue Date |
|---------------|---------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Digital Media | US | 5,506,624 | Rotating Sample of Video Images | 4/9/1998 |
| | US | 5,745,713 | Movie-Based Facility for Launching Application Programs or Services | 4/28/1998 |
| | US | 5,774,666 | System and Method for Displaying Uniform Network Resource Locators Embedded in Time-Based Medium | 6/30/1998 |
| | US | 5,987,509 | System and Method for Displaying an Active URL During Playback of a Media File or Media Broadcast | 11/18/1999 |
| | US | 5,808,882 | Synchronized, Interactive Playback of Digital Movies Across a Network | 9/14/1998 |
| | US | 5,943,947 | Apparatus and Method for Error Concealment in an Audio Stream | 8/24/1999 |
| | US | 6,005,900 | High Performance Player for Distributed, Time-Based Media | 12/21/1999 |
| | US | 6,147,886 | System and Method for Combining Multiple Video Streams | 11/14/2000 |
| | US | 6,075,908 | System and Method for the Scaling of Image Streams that Use Motion Vectors | 6/13/2000 |
| | US | 6,366,565 | Video Camera Used with Personal Computer | 12/28/1999 |
| | US | 5,604,866 | Flow Control System Having a Counter in Transmitter for Decrementing and Incrementing Based Upon Transmitting and Received Message Size Respectively for Indicating Free Space in Receiver | 2/18/1997 |
| | US | 5,311,329 | Digital Filtering for Lenticular Printing | 5/10/1994 |
| | US | 5,438,429 | Digital Filtering for Lenticular Printing | 8/1/1995 |
| | US | 6,070,002 | System Software for Use in a Graphics Computer System Having a Shared System Memory | 3/30/2000 |
| | US | 5,648,186 | System and Method for a Computer-Based Dynamic Information Clipping Service | |
| Internet | US | 5,737,580 | Graphical Method and System for Accessing Information on a Communications Network | 4/7/1998 |
| | US | 5,877,767 | Graphical Method and System for Accessing Information on a Communications Network | 3/2/1999 |
| | US | 5,742,768 | System and Method for Providing and Displaying a Web Page Having an Embedded Menu | |
| | US | 5,890,170 | Method and Apparatus for Publishing Documents in a Hypertextual Network Environment | 3/30/1999 |
| | US | 6,028,433 | Method of Creating and Editing a Web Site in a Client-Server Environment Using Customizable Web Site Templates | 2/15/2000 |
| | US | 6,072,491 | Method and Computer Program Product for Accessing a Web Site | 6/6/2000 |
| | US | 6,096,096 | Web-Site Delivery | 8/1/2000 |
| | US | 6,096,082 | Server to Dynamically Generate Graphics for the World Wide Web | 8/1/2000 |
| | US | 6,188,029 | Web Survey Tool Builder and Result Compiler | 2/13/2001 |
| | US | 6,081,829 | General Purpose Web Annotations Without Modifying Browser | 6/27/2000 |
| | US | 6,199,098 | Method and Apparatus for Providing an Expandable, Hierarchical Index in a Hypertextual, Client-Server Environment | 3/6/2001 |
| | US | 6,012,056 | Mechanism for Integrated Information Search and Retrieval from Diverse Sources Using Multiple Navigation Methods | 1/4/2000 |
| | US | 4,772,681 | Pixel Mapping Apparatus for Color Graphics Display | 9/20/1988 |
| | US | 5,038,297 | Method and Apparatus for Clearing a Region of Z-Buffer | 6/6/1991 |
| | US | 5,197,126 | Clock Switching Circuit for Asynchronous Clocks of Graphics Generation Apparatus | 3/23/1993 |

Schedule A - U.S. Patents

| Country | Patent No. | Title | Issue Date |
|---------|------------|----------------------------------------------------------------------------------------------------------------------|------------|
| US | 4,771,279 | Dual Clock Shift Register | 9/13/1988 |
| US | 4,961,232 | Method for Updating Pipelined Single Port Z-Buffer by Segments on a Scan Line | 8/21/1990 |
| US | 4,789,927 | Interleaved Pipeline Parallel Processing Architecture | 12/8/1988 |
| US | 5,113,490 | Method for Forming a Computer Model from an Intersection of a Cutting Surface with a Bounded Volume | 5/12/1992 |
| US | 5,182,548 | Method and Apparatus for Painting on a Computer | 1/28/1993 |
| US | 4,991,110 | Graphics Processor with Staggered Memory Timing | 2/5/1991 |
| US | 5,129,068 | Graphics Processor with Staggered Memory Timing | 7/7/1992 |
| US | 5,193,146 | Method and Apparatus for Producing a Visually Improved Image in a Computer System | 3/9/1993 |
| US | 5,847,700 | Integrated Apparatus for Displaying a Plurality of Modes of Color Information on a Computer Output Display | 12/8/1998 |
| US | 5,371,518 | Video Timing and Display ID Generator | 12/8/1994 |
| US | 5,621,432 | Method and Apparatus for Generating Display Identification Information | 4/15/1997 |
| US | 5,051,737 | Efficient Graphics Process for Clipping Polygons | 9/24/1991 |
| US | 5,286,941 | Apparatus and Method for Controlling Storage of Display Information in a Computer System | 11/30/1993 |
| US | 5,394,170 | Apparatus and Method for Controlling Storage of Display Information in a Computer System | 2/28/1995 |
| US | 5,768,532 | Graphical Representation of Computer Network Topology and Activity | 8/18/1998 |
| US | 5,585,824 | Graphics Memory Apparatus and Method | 12/17/1998 |
| US | 5,818,433 | Graphics Memory Apparatus and Method | 10/8/1998 |
| US | 5,307,460 | Z-Subdivision for Improved Texture Mapping | 4/28/1994 |
| US | 5,230,038 | Texture Range Controls for Improved Texture Mapping | 7/20/1993 |
| US | 5,343,558 | Method for Scan Converting Shaded Triangular Polygons | 8/30/1994 |
| US | 5,347,618 | Method for Display Rendering by Determining the Coverage of Pixels in Polygons | 9/13/1994 |
| US | 5,345,252 | High Speed Cursor Generation Apparatus | 9/6/1994 |
| US | 5,286,199 | Method and Apparatus for Accomplishing Z-Buffering by Prediction | 11/23/1993 |
| US | 5,548,709 | An Apparatus and Method for Integrating Texture Memory and Interpolation Logic in a Computer System | 8/20/1998 |
| US | 5,708,481 | Apparatus and Method for Integrating Texture Memory and Interpolation Logic in a Computer System | 1/8/1998 |
| US | 5,684,938 | Antialiased Imaging with Improved Pixel Supersampling | 11/4/1997 |
| US | 6,072,500 | Antialiased Imaging with Improved Pixel Supersampling | 6/8/2000 |
| US | 5,581,880 | Method and Apparatus for Antialiasing Raster Scanned Images | 12/3/1998 |
| US | 5,638,338 | Method for Designing Curved Shapes for Use by a Computer | 6/3/1997 |
| US | 5,515,484 | Method and Apparatus for Rendering Volumetric Images | 5/7/1996 |
| US | 5,368,739 | Apparatus and Method for Generating Point Sample Masks in a Graphics Display System | 11/29/1994 |
| US | 5,528,737 | Processor-Based Method for Rasterizing Polygons at an Arbitrary Precision | 6/18/1998 |
| US | 5,806,782 | A Method and Apparatus for Projective Texture Mapping Rendered from Arbitrarily Positioned and Oriented Light Source | 9/8/1998 |
| US | 5,682,554 | Apparatus and Method for Handling Data Transfer Between a General Purpose Computer and a Cooperating Processor | 10/28/1997 |
| US | | | |

Schedule A - U.S. Patents

| Country | Patent No. | Title | Issue Date |
|---------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| | 5,457,779 | System for Accessing Graphic Data in a SIMD Processing Environment | 10/10/1995 |
| US | 5,671,401 | Apparatus for Efficiently Accessing Graphic Data for Rendering on a Display | 9/23/1997 |
| US | 5,742,749 | A Method and Apparatus for Shadow Generation Through Depth Mapping | 4/21/1998 |
| US | 5,480,240 | A System and Method of Generating Interactive Computer Graphic Images Incorporating Three Dimensional Textures | 2/6/1996 |
| US | 5,438,654 | System and Method for Sharpening Texture Imagery in Computer Generated Interactive Graphics | 8/1/1995 |
| US | 5,465,627 | Programmable Video Output Format Generator | 10/3/1996 |
| US | 5,471,572 | A System and Method for Adding Detail to Textures Imagery in Computer Generated Interactive Graphics | 11/28/1995 |
| US | 5,704,024 | A Method & Apparatus for Generating Reflection Vectors Which can be Unnormalized and For Using These Reflection Vectors to Index Locations on an Environment Map | 12/30/1997 |
| US | 5,649,062 | An Efficient Algorithm for Computer Texture Coordinates for Lines & Polygons | 7/16/1997 |
| US | 5,528,738 | Method and Apparatus for Antialiasing Raster Scanned, Polygonal Shaped Images | 6/18/1996 |
| US | 5,619,597 | Method for Sampling a Uniform Spatially-Distributed Sequence of Pixels in a Block | 8/8/1997 |
| US | 5,710,576 | A Computer Graphics System for Rendering Images Using Full Spectral Illumination Data | 1/20/1998 |
| US | 5,635,133 | Optical System for Single Camera | 11/10/1996 |
| US | 5,606,461 | Programmable Video Frame Detector | 3/4/1997 |
| US | 5,703,810 | Improved DRAM for Texture Mapping | 12/30/1997 |
| US | 5,643,066 | Texture Mapping Circuit for Performing Data Interpolations | 8/24/1996 |
| US | 5,962,939 | System and Method for Antialiasing of Texture Edges | 11/6/1999 |
| US | 5,844,567 | Computer Graphics System and Method for Texture Mapping Using Triangular Interpolation | 12/1/1996 |
| US | 5,819,017 | Apparatus and Method for Selectively Storing Depth Information of a 3-D Image | 10/6/1996 |
| US | 5,677,771 | A Method and Apparatus for Supersampling Based on the Local Rate of Change in Texture | 3/2/1999 |
| US | 5,760,783 | A Method and Apparatus for Providing Texture Using a Selected Portion of a Texture MIP-MAP | 6/2/1996 |
| US | 5,818,613 | System and Method for Color Space Conversion | 10/6/1996 |
| US | 5,736,988 | Apparatus and Method for Accelerated Tiled Data Retrieval | 4/7/1996 |
| US | 5,657,479 | Hierarchical Display List Processing in Graphics Data Retrieval System | 8/12/1997 |
| US | 5,936,626 | Computer Graphics Silhouette Load Management | 8/10/1999 |
| US | 5,645,674 | System and Method for Creating Visual Images of Aircraft Wake Vortices | 12/8/1996 |
| US | 6,226,003 | Method for Rendering Silhouette and True Edges of 3-D Line Drawings with Occlusion | 5/1/2001 |
| US | 6,131,189 | System and Method to Efficiently Represent Aliases and Indirect Memory Operations in Static Single Assignment Form During Compilation | 10/10/2000 |
| US | 5,946,113 | System and Method for Color Space Conversion Using an Extended Color Space | 8/31/1999 |
| US | 6,147,772 | System and Method for Color Space Conversion Using an Extended Color Space | 11/14/2000 |
| US | 5,831,620 | System and Computer-Based Method for Creating Real-Time Mirror Reflections | 11/3/1998 |

Schedule A - U.S. Patents

| | Country | Patent No. | Title | Issue Date |
|--|---------|------------|--------------------------------------------------------------------------------------------------------------------------------------|------------|
| | | 5,815,162 | Computational Low-Cost Anti-Aliased Bresenham Line Algorithm | 9/29/1998 |
| | US | 6,249,289 | Multi-Purpose High Resolution Distortion Correction | 8/19/2001 |
| | US | 5,949,424 | Method, System and Computer Program Product for Bump Mapping in Tangent Space | 9/7/1999 |
| | US | 5,880,738 | Method, System and Computer Program Product for Shading | 3/9/1999 |
| | US | 6,163,319 | Method, System and Computer Program Product for Shading | 12/18/2000 |
| | US | 6,104,417 | Unified Memory Computer Architecture with Dynamic Graphics Memory Allocation | 8/15/2000 |
| | US | 6,164,794 | Upstream Situated Apparatus and Method within a Computer System for Controlling Data Flow to a Downstream Situated Input/Output Unit | 11/28/2000 |
| | US | 6,078,331 | A Method and System for Efficiently Drawing Subdivision Surfaces for 3D Graphics | 6/20/2000 |
| | US | 6,078,332 | Real-Time Lighting Algorithm Using 3D Texture Mapping | 6/20/2000 |
| | US | 6,175,367 | A Method and System for Real Time Illumination of Computer Generated Images | 1/16/2001 |
| | US | 6,002,408 | System and Method for Storing and Accessing Data Representative of an Object in Various Levels of Detail | 12/14/1999 |
| | US | 6,154,215 | Method and Apparatus for Maintaining Multiple Representations of a Same Scene in Computer Generated Graphics | 11/28/2000 |
| | US | 6,067,850 | Blended Texture Illumination Mapping | 5/2/2000 |
| | US | 5,907,982 | Latching Assembly for a Computer | 6/1/1999 |
| | US | 6,215,498 | A Platform Independent Application Program Interface for Interactive 3D Scene Management | 4/10/2001 |
| | US | 6,108,007 | Method, System and Computer Program Product for Increasing Interpolation Precision Using Multi-Channel Texture Mapping | 8/22/2000 |
| | US | 6,104,415 | Method for Accelerating Minified Textured Cache Access | 8/15/2000 |
| | US | 6,232,981 | Method for Improving Texture Locality for Pixel Quads by Diagonal Level of Detail Calculation | 5/15/2001 |
| | US | 6,232,978 | Method, System and Computer Program Product for Fast Computation Using Parallel Multi-Channel Resampling and Blending | 5/15/2001 |
| | US | 6,248,415 | Method and Apparatus for Culling Polygons | 6/12/2001 |
| | US | 6,238,413 | Method and System for a RISC Graphics Pipeline Optimized for High Clock Speeds by Using Recirculation | 5/22/2001 |
| | US | 6,075,548 | A Packetized Command Interface to a Graphics Processor | 6/13/2000 |
| | US | 6,230,177 | Method and Apparatus for Performing Fast Fourier Transforms | 5/8/2001 |
| | US | 6,232,610 | Method and Apparatus for Efficiently Switching State in a Graphics Pipeline | 6/28/2001 |
| | US | 6,128,838 | Method and Apparatus for Calculating X to the Exponent of Y | 10/3/2000 |
| | US | 6,133,901 | Method and System for Width Independent Anti-Aliasing | 10/17/2000 |
| | US | 6,081,425 | Constant Multisample Image Coverage Mask | 7/18/2000 |
| | US | 6,205,531 | Method and Apparatus for Virtual Address Translation | 3/20/2001 |
| | US | 6,258,658 | Apparatus and Method for Extending Computational Precision of a Computer System Having a Modular Arithmetic Processing Unit | 7/3/2001 |
| | US | 6,229,547 | System and Method for Rendering Multi-Planar Refractions Using Bi-Linear Interpolation | 5/8/2001 |

Schedule A - U.S. Patents

| | Country | Patent No. | Title | Issue Date |
|--|---------|------------|------------------------------------------------------------------------------------------------|------------|
| | US | 6,288,881 | Volumetric Three-Dimensional Fog Rendering Technique | 7/31/2001 |
| | US | 6,163,320 | Method and Apparatus for Radiometrically Accurate Texture-Based Lightpoint Rendering Technique | 12/19/2000 |

Schedule A - Pending Patent Applications

| | Country | Application No. | Title | Filing Date |
|--------------------|---------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| Tablet Computing | US | 198100 | "Pen-Based Interface for a Notepad Computer" | 11/20/1998 |
| | US | 198114 | "Pen-Based Computer System" | 11/20/1998 |
| Graphics Rendering | US | 09/005129 | System and Method for the Direct Rendering of Curve Bounded Objects | 1/8/1998 |
| | US | 191488 | Floating Point Gamma Correction Method And System | 11/12/1998 |
| | US | 09/217398 | High Precision Texture Wrapping Method And Device | 12/21/1998 |
| | US | 265487 | Method And Device For Associating A Pixel With One Of A Plurality Of Regions In A Logarithm Or Cosine Space | 3/9/1999 |
| | US | 072060 | Method and System For Providing Texture Using A Selected Portion of a Texture Map | 5/5/1998 |
| | US | 033683 | Improved Chroma-Key Suppression Method and Apparatus | 3/3/1998 |
| | US | 09/244275 | Memory Chip For Use in a Unified Memory Architecture | 2/3/1998 |
| | US | 244281 | Memory Controller for Controlling Memory in a Computer System Having a Unified Memory Architecture | 2/3/1999 |
| | US | 244284 | I/O Chip in a Computer System Having a Unified Memory Architecture | 2/3/1999 |
| | US | 220078 | System and Method for Morphing Based on Multiple Weighted Parameters | 12/23/1998 |
| | US | 845528 | A Method and System for Efficiently Evaluating and Drawing Nurbs Surfaces for 3D Graphics | 4/25/1997 |
| | US | 898123 | System and Method for Displaying Different Portions of an Object in Different LOD Levels | 7/23/1987 |
| | US | 070808 | System and Method for Displaying Different Portions of an Object in Different Levels of Detail | 5/1/1998 |
| | US | 074027 | Occlusion Culling For Complex Transparent Scenes in Computer Generated Graphics | 5/5/1998 |
| | US | 137006 | Method and System for Performing Rasterization in Producing Three-Dimensional Graphics Using YUV Color Space and Combining Same with Digital Video in YUV Color Space | 8/20/1998 |
| | US | 035378 | Subsampled Texture Edge Antialiasing | 3/5/1998 |
| | US | 958537 | Method and Apparatus for Providing Image and Graphics Processing Using a Graphics Rendering Engine | 10/23/1997 |
| | US | 937783 | Method, System and Computer Program Product for Providing Illumination in Computer Graphics Shading and Animation | 9/25/1997 |
| | US | 09/048099 | Method for Efficient Handling of Texture Cache Misses by Rasterization | 3/28/1998 |
| | US | 09/081073 | Method and Apparatus for Line Antialiasing by Gamma-Corrected Area Calculation | 5/19/1998 |
| | US | 248136 | System and Method for Rendering an Image | 2/8/1998 |
| | US | 09/448907 | A Packetized Command Interface to a Graphics Processor | 11/23/1999 |
| | US | 09/549158 | A Packetized Command Interface to a Graphics Processor | 4/13/2000 |
| | US | 09/146516 | Method and Apparatus For Rasterizing in a Hierarchical Tile Order | 9/2/1998 |
| | US | 978755 | Range Correct Layered Fog Model Using 3D Texture | 11/28/1997 |
| | US | 111284 | Backface Primitives Culling | 7/8/1998 |
| | US | 201814 | Multi-Threaded Texture Modulation for Axis Aligned Volume Rendering | 12/1/1998 |
| | US | 247422 | Multisample Filter Method With Exact Reconstruction | 2/10/1999 |

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| | Country | Application No. | Title | Filing Date |
|--|---------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| | US | 09/227227 | Method and Apparatus For Synchronizing Graphics Pipelines | 1/8/1999 |
| | US | 218121 | Scaleable Network Based Computer Graphics System | 12/21/1998 |
| | US | 346071 | Computer System Having A Distributed Texture Memory Architecture | 7/1/1999 |
| | US | 09/707418 | Method and Apparatus for Radiometrically Accurate Texture-Based Lightpoint Rendering Technique | 11/8/2000 |
| | US | 348882 | Antialiasing Method Using Barycentric Coordinates Applied to Lines | 7/1/1998 |
| | US | 09/220596 | System and Method For Transitioning Between Two Filters, Allowing For The Use of Higher Order Interpolation | 12/28/1998 |
| | US | 09/418055 | Method, System, and Computer Program Product For Compositing True Colors and Intensity-Mapped Colors Into A Frame Buffer | 10/12/1999 |
| | US | 218042 | System and Method For Locking Disparate Video Formats | 12/22/1998 |
| | US | 09/247865 | Method For Interfacing to Ultra-High Resolution Output Devices | 2/10/1999 |
| | US | 232860 | Method For Tiling Multiple Displays to Generate a Large Area Display of Moving Data | 1/15/1999 |
| | US | 294548 | Combined Floating-Point Logic Core and Frame Buffer | 4/19/1999 |
| | US | 09/294450 | Apparatus and Method for Sharing Antialiasing Memory Across Multiple Displays | 4/19/1999 |
| | US | 277587 | Transformation Pipeline for the Computing Distortion Correction Geometry for any Design Eyepoint, Display Surface Geometry and Projector Position | 3/28/1999 |
| | US | 385270 | Antialiasing Method for Computer Graphics | 3/23/1999 |
| | US | 09/220156 | Processor for Geometry Transformations and Lighting Calculations | 12/23/1998 |
| | US | 283186 | System and Method for Maintaining Time Dependencies in Conversions That Include Parallel Operations | 3/5/1999 |
| | US | 09/467561 | A Method and System for Efficiently Implementing Two Sided Vertex Lighting in Hardware | 12/20/1999 |
| | US | 275725 | Method and Apparatus for Texture Memory Management | 3/24/1999 |
| | US | 09/247816 | Method and Apparatus for Early Culling of Occluded Objects | 2/9/1999 |
| | US | 348841 | Method and System for Generating Light Values for a Set of Vertices | 7/1/1999 |
| | US | 273247 | Method and System for Dynamic Clock Frequency Adjustment for a Graphics Subsystem in a Computer | 3/19/1999 |
| | US | 308967 | Fine Grain Multi-Pass for Multiple Texture Rendering | 5/7/1999 |
| | US | 344006 | Method and System for Dynamic Texture Replication on a Distributed Memory Graphics Architecture | 6/24/1999 |
| | US | 346388 | Cache Memory For High Latency and Out-of-Order Return of Texture Data | 7/1/1999 |
| | US | 328000 | Method for Virtual Clipping A Three-Dimensional Graphics Image | 6/8/1999 |
| | US | 09/502497 | A Method and System For Efficient Simplification of Tetrahedral Meshes Used in 3D Volumetric Representations | 2/11/2000 |

Schedule A - Pending Patent Applications

| | Country | Application No. | Title | Filing Date |
|--|---------|-----------------|--------------------------------------------------------------------------------------------------------------------------------|-------------|
| | US | 09/377778 | Method, System and Computer Program Product for Multi-Pass Bump-Mapping into an Environment Map | 8/20/1999 |
| | US | 328184 | Method and Apparatus for a Modified Linear Filter Using Texture Data as Phase Angle | 8/8/1999 |
| | US | 303994 | View-Dependent Layer Ordering Method and System | 5/3/1999 |
| | US | 300918 | Method and System for Iterative Morphing | 4/28/1999 |
| | US | 293889 | Apparatus and Method for Increasing the Bandwidth to a Graphics Subsystem | 4/19/1999 |
| | US | 288483 | Device, Method and System for Generating Per-Pixel Light Values Using Texture Parameters | 3/8/1999 |
| | US | 386379 | Method, System, and Computer Program Product for Efficient Buffer Level Management of Memory-Buffered Graphics Data | 8/31/1999 |
| | US | 386378 | Method, System and Computer Program Product for Overlapping Graphics Data Collection and Transmission Using a Single Processor | 8/31/1999 |
| | US | 220082 | Method, System and Computer Program Product for Modified Blending Between Clip-Map Tiles | 12/23/1998 |
| | US | 09/389358 | Reflection Space Image Based Rendering | 8/8/1999 |
| | US | 09/727985 | Texture Generating Apparatus For Dynamic Interference Checking | 11/30/2000 |
| | US | 09/675979 | Method and System for Evaluating Derivatives in Screen Space Using Perspective Corrected Barycentric Coordinates | 9/28/2000 |
| | US | 363638 | Method and System for Transforming Color Coordinates by Direct Calculation | 7/30/1999 |
| | US | 09/576740 | Cheap, Well-Behaved Affine Transformation of Bounding Spheres | 5/23/2000 |
| | US | 348886 | Dual Mode Device and Method for Generating Vector Cross Products or DOT Products | 7/1/1999 |
| | US | 408851 | System and Method for Load Balancing in a Multi-Channel Graphics System | 9/30/1999 |
| | US | 09/404808 | Method, System, and Computer Program Product for Using Alpha Values to Control Pixel Blending | 9/24/1999 |
| | US | 09/481346 | Method, System, and Computer Program Product for Generating Spatially Varying Effects in a Digital Image | 12/15/1999 |
| | US | 09/565982 | Method and Apparatus for Rendering a Quadrangle Primitive | 5/4/2000 |
| | US | 60/295864 | Reducing Fill and Improving Quality of Interlaced Displays Using Multi-Sampling | 8/8/2001 |
| | US | 09/832138 | Scene Representation Method and System | 4/10/2001 |
| | US | 09/988649 | Method and System for Implementing Graphics Control Constructs | 5/12/2000 |
| | US | 09/988650 | Table Indexing System and Method | 5/12/2000 |
| | US | 09/988621 | Method and System for Accelerating Noise | 5/12/2000 |
| | US | 09/989520 | Data Retrieval Method and System | 5/12/2000 |
| | US | 09/988654 | Extended Range Pixel Display Method and System | 5/12/2000 |
| | US | 09/606968 | Method, System and Computer Program Product for Implementing Derivative Operators with Graphics Hardware | 8/29/2000 |
| | US | 09/636907 | Method and System for Executing SIMD Instruction Using Graphics Technology | 8/15/2000 |
| | US | 09/572452 | Method, System, and Computer Program Product for Simulating Camera Depth-of-Field Effects in a Digital Image | 5/17/2000 |
| | US | 09/469558 | An Efficient Graphics Pipeline With a Pixel Cache and Data Pre-Fetching | 12/22/1999 |

Schedule A - Pending Patent Applications

| | Country | Application No. | Title | Filing Date |
|---------------|---------|-----------------|-----------------------------------------------------------------------------------------------------------------------------|-------------|
| | US | 09/470948 | A System and Method for Linearly Mapping a Tiled Image Buffer | 12/22/1998 |
| | US | 09/473208 | A Graphics Geometry Cache | 12/27/1999 |
| | US | 09/473210 | View Volume Clip-Check in Object Space | 12/27/1999 |
| | US | 09/554810 | Method, System, and A Computer Program Product For Filtering A Texture Applied To A Surface Of A Computer Generated Object | 10/10/2000 |
| | US | 09/599971 | Method and System for Performing Multi-Texturing Operations Using Recursive Interleaving | 6/21/2000 |
| | US | 09/688978 | System and Method for Efficiently Controlling a Graphics Rendering Pipeline | 10/17/2000 |
| | US | 60/255883 | Method, System and Computer Program Product for Determining Regions That Are Occluded From An Observation Point | 12/18/2000 |
| | US | 09/684812 | Method, System, and Computer Program Product for Anisotropic Filtering and Applications Thereof | 10/10/2000 |
| | US | 60/263946 | System, Method, and Computer Program Product For General Environment Mapping | 11/30/2000 |
| | US | 60/258323 | Hardware-Accelerated Volume Lighting Algorithm | 12/28/2000 |
| | US | 60/252094 | Rendering Volumetric Fog and Other Gaseous Phenomena | 11/21/2000 |
| | US | 60/238128 | Texture Tiling With Adjacency Information | 10/6/2000 |
| | US | 60/286416 | A Volumetric Based Method and System for Visualizing Datasets | 6/18/2001 |
| | US | 60/252092 | Rendering Volumetric Fog and Other Gaseous Phenomena Using an Alpha Channel | 11/21/2000 |
| | US | 60/252093 | Method, System, and Computer Program Product for Rendering Multicolored Layered Fog with Self-Shadowing and Scene Shadowing | 11/21/2000 |
| Internet | US | 357829 | General Purpose Web Annotations Without Modifying Browser | 7/19/1999 |
| | US | 09/567149 | Graphical Method and System for Accessing Information on a Communications Network | 4/25/2000 |
| Digital Media | US | 09/418037 | System and Method for Media Stream Indexing and Synchronization | 10/7/1999 |
| | US | 09/632558 | Workstation for Processing and Producing a Video Signal | 8/4/2000 |
| | US | 09/632982 | System and Method for Pre-Processing a Video Signal | 8/4/2000 |
| | US | 09/632483 | System and Method for Producing a Video Signal | 8/4/2000 |
| | US | 09/632461 | System and Method for Packing and Unpacking Video Data | 8/4/2000 |
| | US | 08/900421 | Synchronizing Motion and Time-Based Data for Transfer Between a Server and a Client | 7/25/1997 |
| | US | 09/441729 | Seamless Playback of Multiple Clips of Media Data Across a Data Network | 11/18/1999 |
| | US | 09/441722 | Frame-Accurate Transport of Media Data Across a Data Network | 11/18/1999 |
| | US | 08/020072 | Backfilling Network Movie Player | 2/6/1998 |
| | US | 035687 | Preemptive Time Multiplexed Shared Memory Access | 3/5/1998 |
| | US | 09/427197 | Video Assistance System with Computer Generated Imagery Overlay | 10/25/1999 |
| | US | 09/099742 | System and Method Using a Packetized Encoded Bitstream for Parallel Compression and Decompression | 6/18/1998 |
| | US | 09/518309 | A Method and System for Efficiently Streaming 3D Animation Across a Wide Area Network | 3/6/2000 |
| | US | 09/468398 | Constant Bitrate Algorithm for Block Based Image Compression | 12/17/1999 |
| | US | 09/639365 | System and Method for Communicating Video Data in a Digital Media Device | 3/31/2000 |

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| | Country | Application No. | Title | Filing Date |
|--|---------|-----------------|--------------------------------------------------------------------------------------------|-------------|
| | US | 09/577171 | Cost-Optimal Convolution Algorithm With Low or Null Latency | 5/23/2000 |
| | US | 09/544360 | A Technique For Controlling Media Data Streams Using Embedded Controls | 4/6/2000 |
| | US | 09/521234 | Apparatus and Method for Recognizing Color Space of a Digital Video Input | 3/8/2000 |
| | US | 09/528796 | System and Method for Compressing Data | 7/28/2000 |
| | US | 09/528658 | System and Method for Storing Compressed Data onto a Storage Medium | 7/28/2000 |
| | US | 60/281106 | Method and Apparatus for Producing Digital Video from a General Digital Graphics Interface | |

Schedule A - Foreign Patents and Applications

| Country | App/Patent No. | Title | Foreign Filing Date | Issue Date | Status |
|-----------|----------------|--------------------------------------------------------------------------------------------------------------------------------|---------------------|------------|-----------|
| EPO | 96949509.6 | Method, System And Computer Program Product For Providing Illumination In Computer Graphics Shading And Animation | 9/25/1996 | | Abandoned |
| Japan | 2000-513245 | Method, System And Computer Program Product For Providing Illumination In Computer Graphics Shading And Animation | 9/25/1996 | | Pending |
| PCT | US96/20098 | Method, System And Computer Program Product For Providing Illumination In Computer Graphics Shading And Animation | 9/25/1996 | | Pending |
| France | 96942475.7 | Method And Apparatus For Rasterizing In A Hierarchical Tile Order | 5/17/2000 | | Pending |
| Japan | 2000-569069 | Method And Apparatus For Rasterizing In A Hierarchical Tile Order | 6/2/2000 | | Pending |
| PCT | US99/18363 | Method And Apparatus For Rasterizing In A Hierarchical Tile Order | 8/29/1999 | | Pending |
| UK | 99942476.7 | Method And Apparatus For Rasterizing In A Hierarchical Tile Order | 5/17/2000 | | Pending |
| EPO | 993207.9 | Method And Apparatus For Synchronizing Graphics Pipelines | 7/11/2001 | | Pending |
| Japan | | Method And Apparatus For Synchronizing Graphics Pipelines | 7/6/2001 | | Pending |
| PCT | US00/00848 | Method And Apparatus For Synchronizing Graphics Pipelines | 1/7/2000 | | Pending |
| PCT | US00/10634 | Combined Floating-Point Logic Core And Frame Buffer | 4/18/2000 | | Pending |
| PCT | US00/107904 | Method And Apparatus For Texture Memory Management | 3/24/2000 | | Pending |
| PCT | US00/10379 | Apparatus And Method For Increasing The Bandwidth To A Graphics Subsystem | 4/18/2000 | | Pending |
| PCT | US00/08184 | Device, Method And System For Generating Per-Pixel Light Values Using Texture Parameters | 3/6/2000 | | Abandoned |
| PCT | US00/40788 | Method, System And Computer Program Product For Overlapping Graphics Data Collection And Transmission Using A Single Processor | 6/31/2000 | | Pending |
| PCT | US99/22984 | Method, System And Computer Program Product For Modified Blending Between Clip-Map Tiles | 12/17/1999 | | Pending |
| PCT | US00/21381 | Workstation For Processing And Producing A Video Signal | 6/4/2000 | | Abandoned |
| PCT | US00/21382 | System And Method For Pre-Processing A Video Signal | 6/4/2000 | | Abandoned |
| PCT | US00/21383 | System And Method For Producing A Video Signal | 6/4/2000 | | Abandoned |
| PCT | US00/21389 | System And Method For Packing And Unpacking Video Data | 6/4/2000 | | Abandoned |
| EPO | 99909783.7 | Preemptive Time Multiplexed Shared Memory Access | 3/2/1999 | | Pending |
| Japan | 2000-034847 | Preemptive Time Multiplexed Shared Memory Access | 3/2/1999 | | Pending |
| PCT | US99/04816 | Preemptive Time Multiplexed Shared Memory Access | 7/28/2001 | | Pending |
| PCT | | System And Method For Compressing Data | | | |
| PCT | | System And Method For Storing Compressed Data Onto A Storage Medium | 7/27/2001 | | Pending |
| Canada | 1290870 | Pixel Mapping Apparatus For Color Graphics | | 10/15/1991 | Granted |
| Germany | DE3738185 | Pixel Mapping Apparatus For Color Graphics | | 11/27/1997 | Granted |
| Hong Kong | 527 | Pixel Mapping Apparatus For Color Graphics | | 6/3/1993 | Granted |
| Japan | 2913096 | Pixel Mapping Apparatus For Color Graphics | | 4/16/1999 | Granted |
| Singapore | 2193316 | Pixel Mapping Apparatus For Color Graphics | | 12/28/1991 | Granted |
| UK | 2198319 | Pixel Mapping Apparatus For Color Graphics | | 6/29/1991 | Granted |
| India | 172327 | Dual Clock Shift Register | | 5/27/1994 | Granted |
| EPO | 433373 | Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line | | 6/29/1996 | Granted |
| France | 433373 | Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line | | 6/29/1996 | Granted |
| Germany | DE9926571 | Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line | | 5/29/1998 | Granted |

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| Country | App/Patent No. | Title | Foreign Filing Date | Issue Date | Status |
|-------------|----------------|-----------------------------------------------------------------------------------------------------|------------------------|------------|-----------|
| Japan | 2584250 | Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line | | 2/12/1999 | Granted |
| Korea | 131820 | Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line | | 12/4/1997 | Granted |
| Switzerland | 433373 | Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line | | 5/28/1999 | Granted |
| Canada | 1276312 | Interleaved Pipeline Parallel Processing Architecture | | 11/13/1990 | Granted |
| EPO | 93912753.8 | An Apparatus And Method For Integrating Texture Memory And Interpolation Logic In A Computer System | 3/7/1995 | | Pending |
| PCT | US95/02853 | An Apparatus And Method For Integrating Texture Memory And Interpolation Logic In A Computer System | 3/7/1995 | | Abandoned |
| JP | 9510309 | An Apparatus And Method For Integrating Texture Memory And Interpolation Logic In A Computer System | 3/7/1995 | | |
| EPO | 98228193 | Apparatus And Method For Selectively Storing Depth Information Of A 3-D Image | 8/15/1995 | | Abandoned |
| PCT | US98/15245 | Apparatus And Method For Selectively Storing Depth Information Of A 3-D Image | 8/15/1995 | | Abandoned |
| EPO | 98339341.7 | A Method And Apparatus For Providing Texture Using A Selected Portion Of A Texture Mip-Map | 11/8/1998 | | Abandoned |
| PCT | US98/17873 | A Method And Apparatus For Providing Texture Using A Selected Portion Of A Texture Mip-Map | 11/8/1998 | | Abandoned |
| EPO | 97917591.8 | System And Method For Color Space Conversion Using An Extended Color Space | 3/28/1997 | | Abandoned |
| PCT | US97/04991 | System And Method For Color Space Conversion Using An Extended Color Space | 3/28/1997 | | Abandoned |
| Canada | 2214988 | Unified Memory Computer Architecture With Dynamic Graphics Memory Allocation | 9/6/1997 | | Pending |
| EPO | 97309987.8 | Unified Memory Computer Architecture With Dynamic Graphics Memory Allocation | 9/6/1997 | | Pending |
| Japan | 251134.97 | Unified Memory Computer Architecture With Dynamic Graphics Memory Allocation | 9/6/1997 | | Pending |
| Mexico | 978485 | Unified Memory Computer Architecture With Dynamic Graphics Memory Allocation | 9/26/1997 | | Pending |
| PCT | US99/15075 | Method And Apparatus For Virtual Address Translation | 7/1/1999 | | Abandoned |
| PCT | US99/19902 | System and Method for Combining Multiple Video Streams | 8/28/1998 | | Abandoned |
| PCT | US98/0946 | Digital Filtering for Lenticular Printing | 8/18/1992 | | Abandoned |
| AU | 9225405 | Digital Filtering for Lenticular Printing | 8/18/1992 | | Abandoned |
| PCT | US99/3924 | Method and Apparatus for Clearing a Region of Z-Buffer | 9/12/1999 | | Abandoned |
| EP | 981281 | Method and Apparatus for Clearing a Region of Z-Buffer | 9/12/1999 | 2/7/1999 | Abandoned |
| DE | 9829991 | Method and Apparatus for Clearing a Region of Z-Buffer | 9/12/1999 | 3/21/1998 | Abandoned |
| PCT | WO99/02891 | Graphics Processor with Staggered Memory Timing | published 3/22/1999 | | Abandoned |
| PCT | WO99/12888 | Method and Apparatus for Producing a Visually Improved Image In a Computer System | published 8/22/1999 | | Abandoned |
| AU | 9173134 | Method and Apparatus for Producing a Visually Improved Image In a Computer System | published 9/3/1991 | | Abandoned |
| PCT | US99/18745 | Computer System Having A Distributed Texture Memory Architecture | 8/18/2000 | | Pending |

DOCKET NO. : MSFT-0987/191794.1

PATENT



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

David C. Tannenbaum

Serial No.: 09/348,885

Filed: July 1, 1999

For: DUAL MODE DEVICE AND METHOD FOR GENERATING VECTOR
CROSS PRODUCTS OR DOT PRODUCTS

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Group Art Unit: 2671

Examiner: S. Wiley

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Washington, DC 20231

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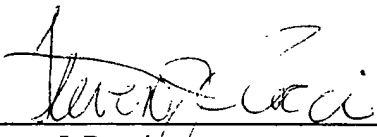
The undersigned, of the firm WOODCOCK WASHBURN LLP, One Liberty
Place - 46th Floor, Philadelphia, Pennsylvania 19103, Attorney and/or Agents for
Applicant(s), hereby appoints the following:

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| John P. Donohue, Jr. | Registration No. 29,916 | Harold H. Fullmer | Registration No. 42,560 |
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| Lynn B. Morreale | Registration No. 32,842 | Chad Ziegler | Registration No. 44,273 |
| Mark DeLuca | Registration No. 33,229 | Gwilym J.O. Attwell | Registration No. 45,449 |
| Joseph Lucci | Registration No. 33,307 | David N. Farsiou | Registration No. 44,104 |
| Michael P. Dunnam | Registration No. 32,611 | Paul K. Legaard | Registration No. 38,534 |
| Michael D. Stein | Registration No. 34,734 | Steven H. Meyer | Registration No. 37,189 |
| Albert J. Marcellino | Registration No. 34,664 | Paul B. Milcetic | Registration No. 46,261 |
| David R. Bailey | Registration No. 35,057 | Joseph R. Condo | Registration No. 42,431 |
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| Barbara L. Mullin | Registration No. 38,250 | Frank T. Carroll | Registration No. 42,392 |
| Michael P. Straher | Registration No. 38,325 | Thomas E. Watson | Registration No. 43,243 |
| Kevin M. Flannery | Registration No. 35,871 | Eric H. Vance | Registration No. 47,151 |
| David A. Cherry | Registration No. 35,099 | Peter M. Ullman | Registration No. 43,963 |
| Lynn A. Malinoski | Registration No. 38,788 | Richard B. LeBlanc | Registration No. 39,495 |
| Steven B. Samuels | Registration No. 37,711 | Joseph D. Rossi | Registration No. 47,038 |
| Janet E. Reed | Registration No. 36,252 | Rosaleen P. Morris-Oskanian | Registration No. 47,321 |
| Jeffrey J. King | Registration No. 38,515 | George J. Awad | Registration No. 46,528 |
| Robert B. Washburn | Registration No. 16,574 | Steven D. Maslowski | Registration No. 46,905 |
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his/her associates with full power to prosecute the above-identified application and to transact all business in the Patent Office connected therewith and requests that correspondence continue to be directed to the firm of WOODCOCK WASHBURN LLP at the above address.

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